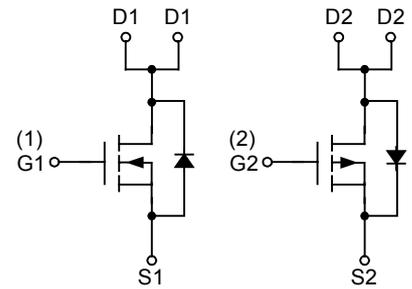


■ PRODUCT CHARACTERISTICS

N-CHANNEL MOSFET		P-CHANNEL MOSFET	
V _{DSS}	30V	V _{DSS}	-30V
R _{DS(ON)} Typ(@V _{GS} =10V)	10mΩ	R _{DS(ON)} Typ(@V _{GS} =-10V)	14mΩ
R _{DS(ON)} Typ(@V _{GS} =4.5V)	15mΩ	R _{DS(ON)} Typ(@V _{GS} =-4.5V)	18mΩ
I _D	30A	I _D	-20A

Symbol

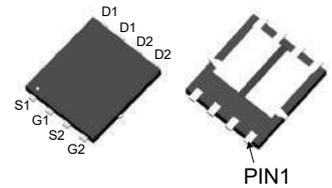


■ APPLICATIONS

- * Electronic lamp ballasts based on half bridge
- * Load Switching, Quick/Wireless Charge.
- * Motor Driving

■ FEATURE

- * Low Gate Charge
- * Pb-Free Lead Plating



■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3617G	PDFN5x6	5000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS(T_A=25°C, unless otherwise specified)

Parameter	Symbol	N-channel	P-channel	Unit
Drain-Source Voltage	V _{DSS}	30	-30	V
Gate-Source Voltage	V _{GSS}	±20	±20	V
Drain Current Continuous(@V _{GS} =±10V, T _A =25°C)	I _D	30	-20	A
Drain Current Pulsed	I _{DM}	120	-80	A
Avalanche Energy	E _{AS}	81	110	mJ
Junction to Case	R _{thJC}	5	8.3	°C/W
Power Dissipation	P _D	25	15	W
Junction Temperature	T _J	+150		°C
Storage Temperature	T _{STG}	-55~ +150		°C

■ N-MOS ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250μA	30	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V, V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V, V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =15A	-	10	15	mΩ
		V _{GS} =4.5V, I _D =15A	-	15	19	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	1.8	2.5	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1.0MHz	-	1.5	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =3A	-	5	-	S
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V f=1.0MHz	-	821	-	pF
Output Capacitance	C _{oss}		-	119	-	pF
Reverse Transfer Capacitance	C _{rss}		-	79	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, I _D =15A, R _G =3Ω	-	6.7	-	ns
Rise Time	t _r		-	15	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	25	-	ns
Fall Time	t _f		-	5.6	-	ns
Total Gate Charge	Q _g	I _D =15A, V _{DS} =15V V _{GS} =10V	-	23	-	nC
Gate to Source Charge	Q _{gs}		-	4.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	30	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	120	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.73	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =15A, T _J =25°C dI/dt=100A/μs	-	12	-	ns
Reverse Recovery Charge	Q _{rr}		-	6	-	nC

■ P-MOS ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Drain to Source Leakage Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	$V_{GS}=+20V, V_{DS}=0V$	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	$V_{GS}=-20V, V_{DS}=0V$	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-10A$	-	14	20	$m\Omega$
		$V_{GS}=-4.5V, I_D=-10A$	-	18	25	$m\Omega$
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.6	-2.5	V
Dynamic characteristics						
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1.0MHz$	-	11	-	Ω
Forward Transconductance	g_{fs}	$V_{DS}=-10V, I_D=-3A$	-	10	-	S
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V$ $f=1.0MHz$	-	1280	-	pF
Output Capacitance	C_{oss}		-	175	-	pF
Reverse Transfer Capacitance	C_{rss}		-	132	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V, V_{DS}=-15V,$ $I_D=-10A, R_G=3\Omega$	-	7	-	ns
Rise Time	t_r		-	1.7	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	38	-	ns
Fall Time	t_f		-	50	-	ns
Total Gate Charge	Q_g	$I_D=-10A, V_{DS}=-15V$ $V_{GS}=-10V$	-	25	-	nC
Gate to Source Charge	Q_{gs}		-	5.1	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	4.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	-20	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	-80	A
Diode Forward Voltage	V_{SD}	$I_{SD}=-1A, V_{GS}=0V$	-	-0.73	-1.2	V
Reverse Recovery Time	t_{rr}	$I_{SD}=-10A, T_J=25^{\circ}\text{C}$ $di/dt=100A/\mu s$	-	12	-	ns
Reverse Recovery Charge	Q_{rr}		-	4.8	-	nC

■ N-MOS TYPICAL CHARACTERISTICS

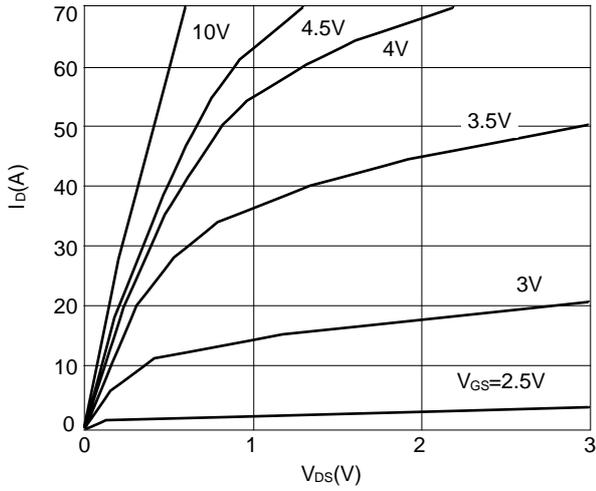


Figure 1: Output Characteristics

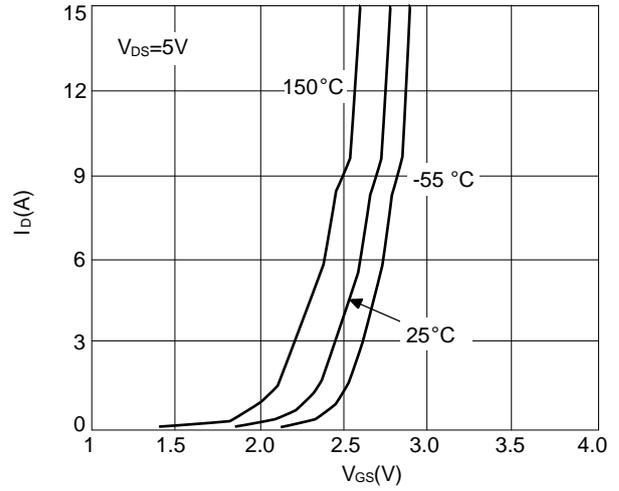


Figure 2: Typical Transfer Characteristics

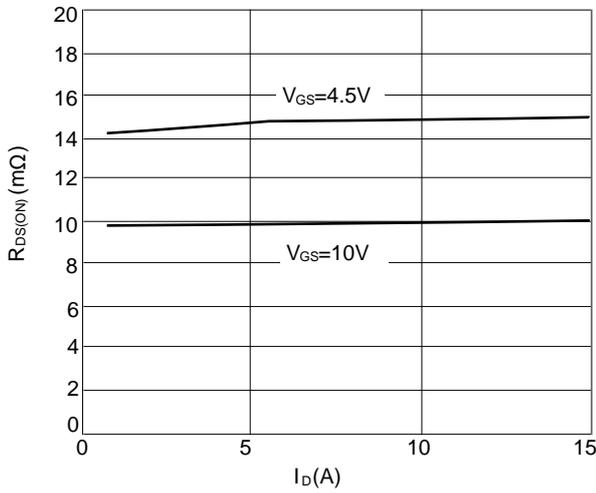


Figure 3: On-Resistance vs. Drain Current

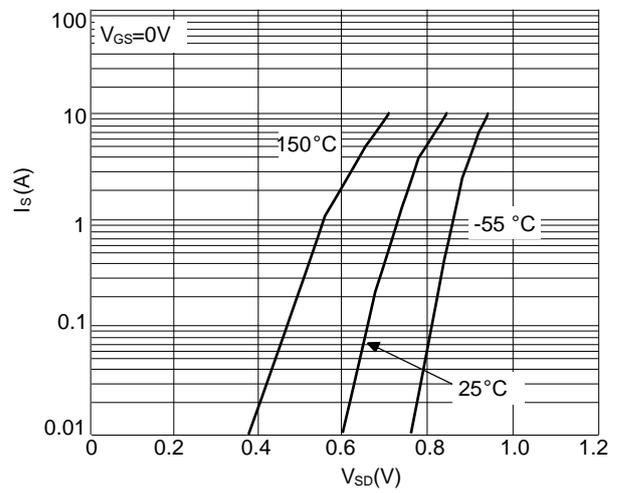


Figure 4: Body Diode Characteristics

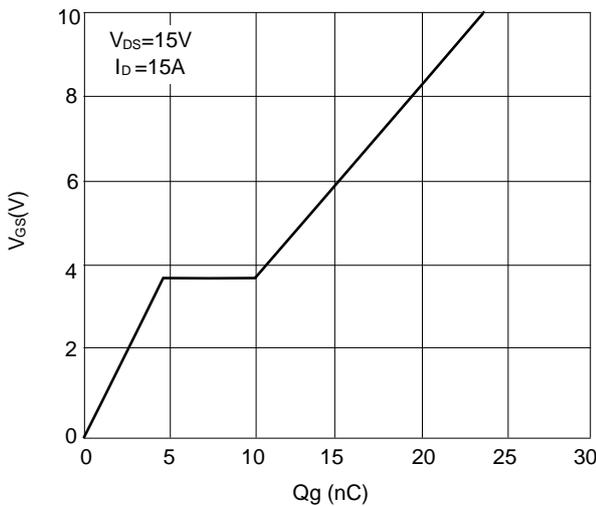


Figure 5: Gate Charge Characteristics

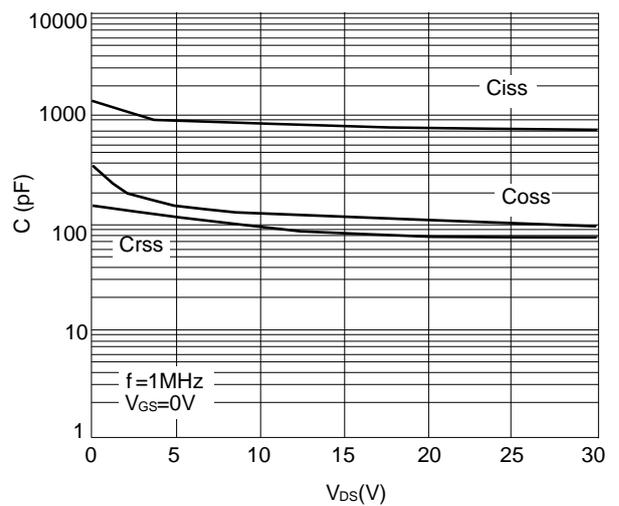


Figure 6: Capacitance Characteristics

■ N-MOS TYPICAL CHARACTERISTICS(Cont.)

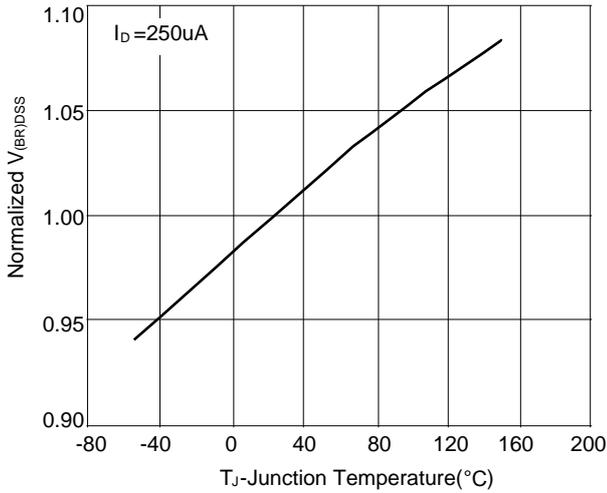


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

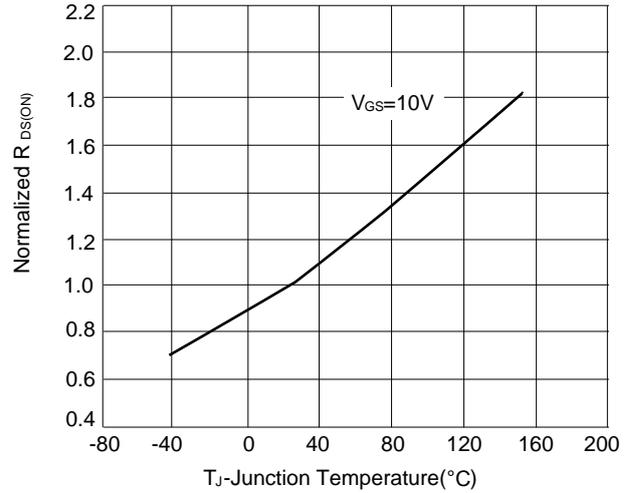


Figure 8: Normalized On-Resistance vs. Junction Temperature

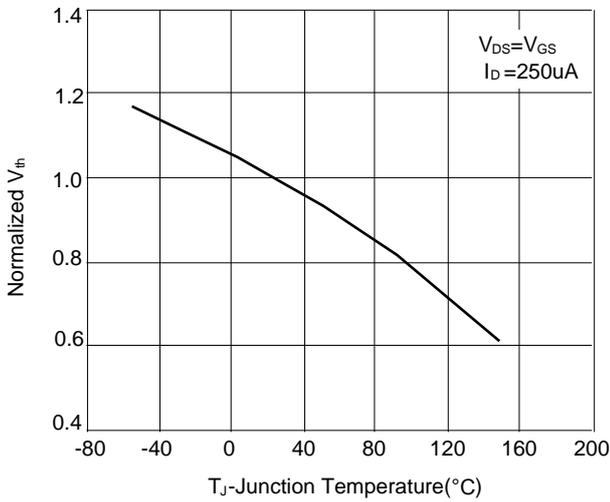


Figure 9: Normalized Threshold Voltage vs. Junction Temperature

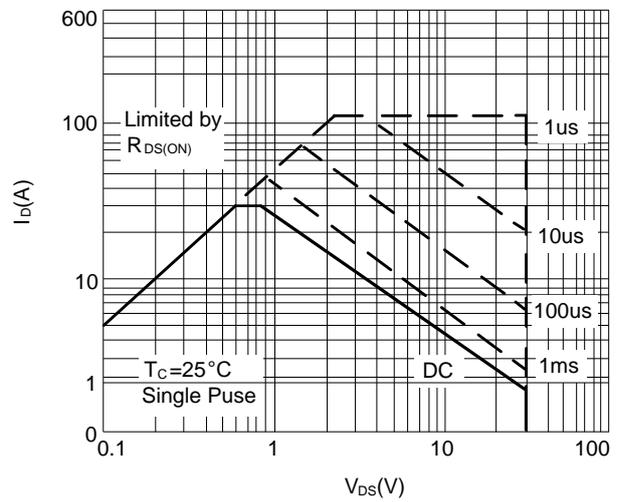


Figure 10: Maximum Safe Operating Area

■ P-MOS TYPICAL CHARACTERISTICS

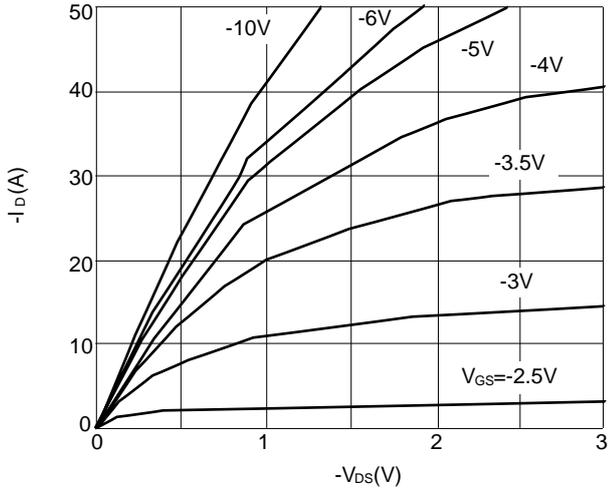


Figure 1: Output Characteristics

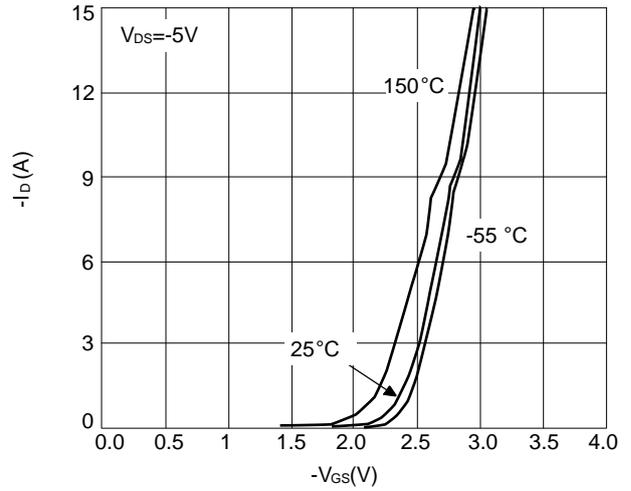


Figure 2: Typical Transfer Characteristics

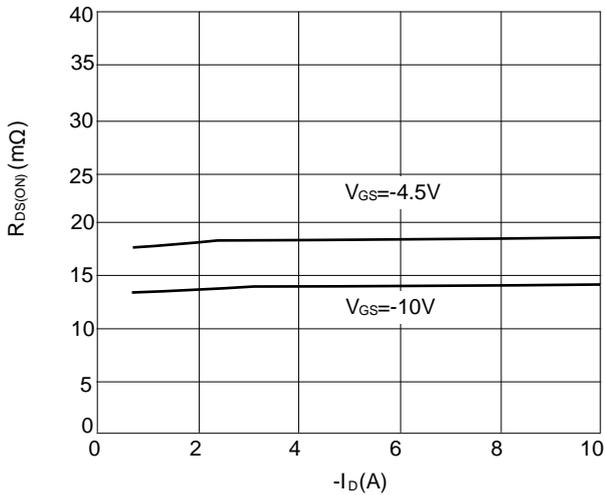


Figure 3: On-Resistance vs. Drain Current

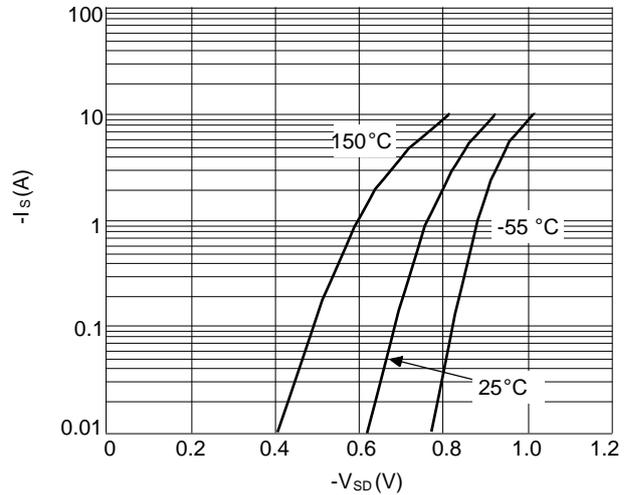


Figure 4: Body Diode Characteristics

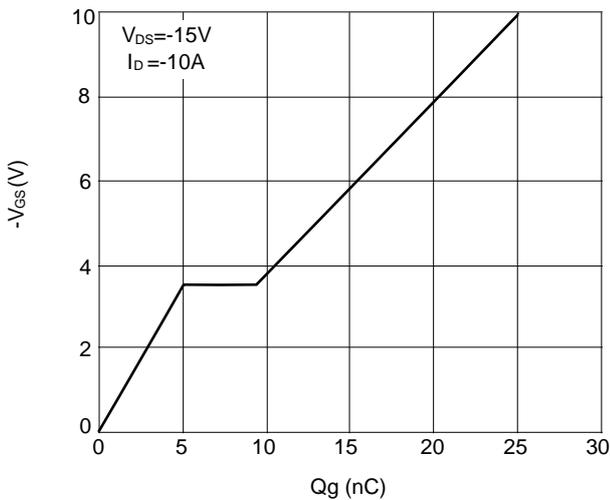


Figure 5: Gate Charge Characteristics

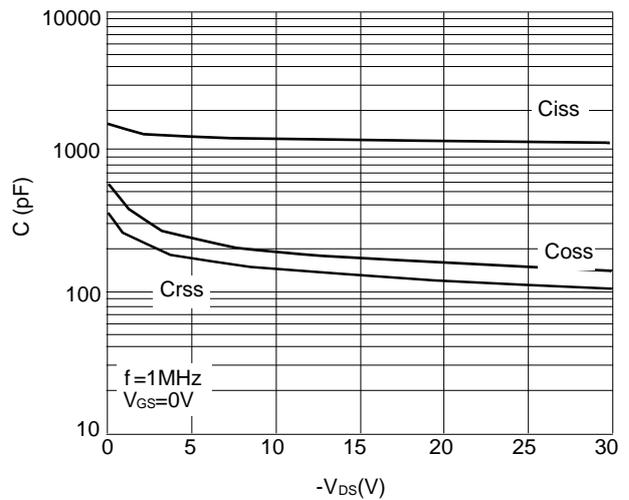


Figure 6: Capacitance Characteristics

■ P-MOS TYPICAL CHARACTERISTICS

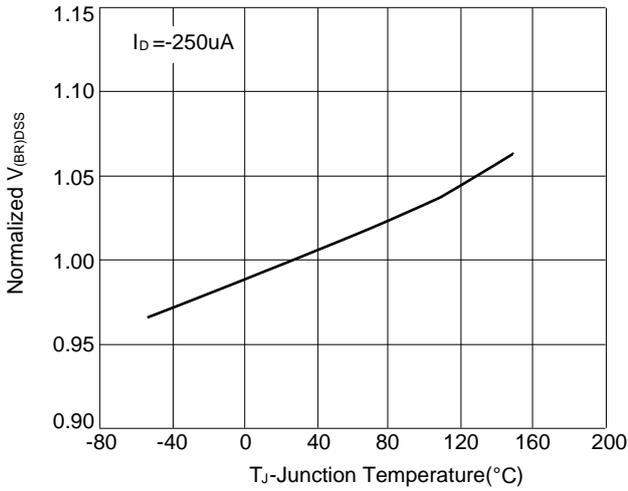


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

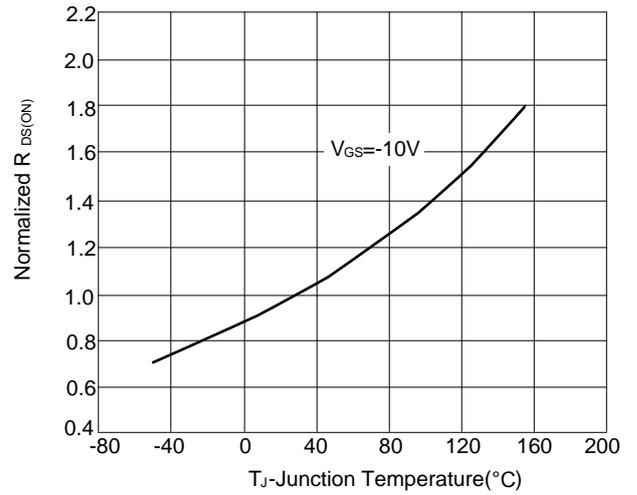


Figure 8: Normalized On-Resistance vs. Junction Temperature

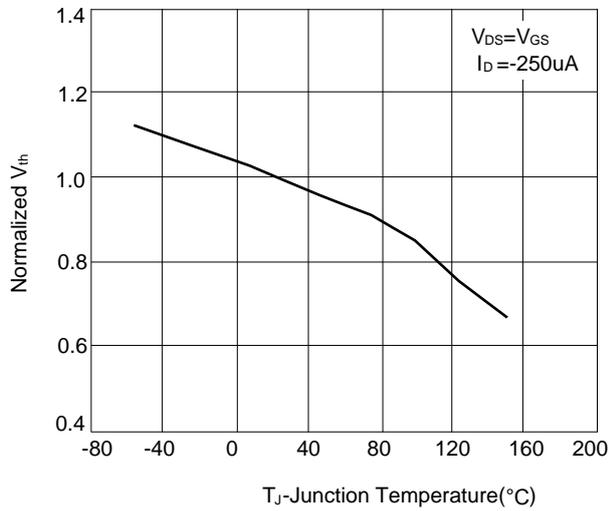


Figure 9: Normalized Threshold Voltage vs. Junction Temperature

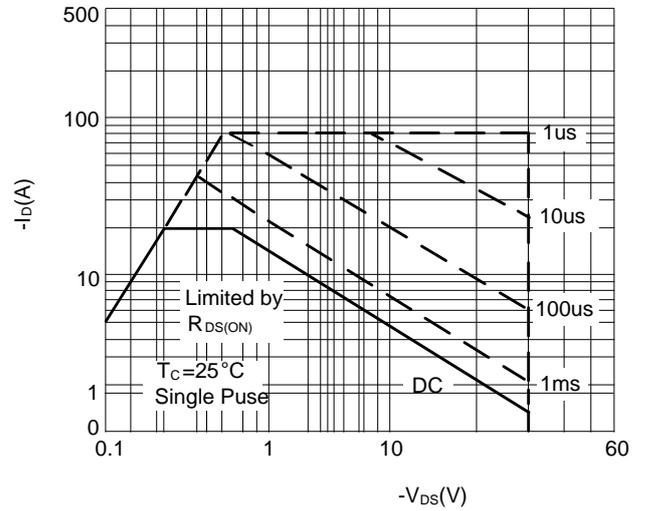
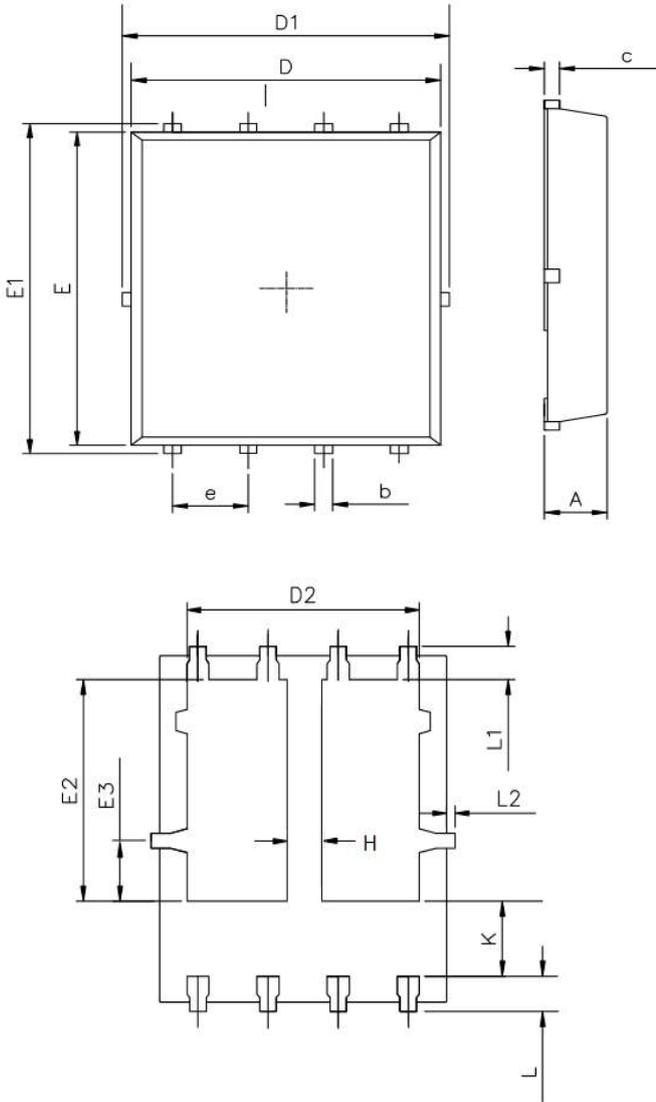


Figure 10: Maximum Safe Operating Area

■ PDFN5X6 Package mechanical data



UNIT:mm

	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50
H	0.5	0.6	0.7